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CONNOLLY BOVE LODGE & HUTZ, LLP
P O BOX 2207
WILMINGTON, DE 19899

EXAMINER	
BELL, BRUCE F	

ART UNIT	PAPER NUMBER
1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/566,066	GESTERMANN ET AL.	
	Examiner	**Art Unit**	
	Bruce F. Bell	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12,13,18,19,21,22,24,25,27,29,31,33 and 35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12,13,18,19,21,22,24,25,27,29,31,33 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 12-13 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeNora (EP 0785294 A) in combination with Suzuki et al (4872958) .

DeNora et al disclose an electrochemical cell for the electrolysis of an aqueous solution of hydrogen chloride (col. 4, lines 34-36), at least consisting of one anode half-cell having an anode (col. 4, lines 37-40), a cathode half-cell having a gas diffusion electrode as cathode (col. 4, lines 55-57) and an ion exchange membrane (col. 4, lines 47-50) which is arranged between anode half-cell and cathode half-cell, which ion exchange membrane consists at least of one perfluorosulphonic acid polymer (col. 4, lines 50-53), the gas diffusion electrode and the ion exchange membrane lying adjacently (col. 5, lines 25-28). The DeNora patent further sets forth pressure and temperature conditions in the electrochemical cell by which the ion exchange membrane and the gas diffusion electrode are intimately linked (i.e. having a contact area greater than 50% of the geometric area). The conditions are as follows:

Pressure: 0.1 bar (i.e. 102-1020 g/cm^2), col. 5, lines 35-37.

Temperature: not above 60^0 C (col. 8, line 9 and example).

DeNora does not specifically set forth that the contact area is greater than 50% or that the membrane is reinforced.

Suzuki et al disclose an ion exchange membrane for electrolysis of a perfluorocarbon polymer having either carboxylic groups or sulfonic acid groups. See col. 3, lines 3-9. The ion exchange membrane is formed by three layers as a composite. The composite is laminated at a temperature from 60 degrees C to 280 degrees C and at a pressure of 0.1 to 100 kg/cm^2 by the flat plate pressing method or roll pressing method. See col. 5, lines 11 – 21. The membrane is reinforced by inserting a support web or a woven fabric of a cloth or net or a non-woven fabric of PTFE or a metallic mesh or perforated sheet between the second and third layers or between the third and fourth layers of the membrane composite. See col. 5, lines 44-52. The electric resistance of the membrane is reduced by the reinforcing. See col. 6, lines 2-5. A substantial reduction of the membrane resistance is shown and has a low electric resistance. The reinforcing material of fibers having oxidation resistance and heat resistance to maintain the dimension stability and mechanical strength is disclosed. See col. 6, lines 19-39. When an electrode is installed, the electrode may be disposed in contact with the membrane or with a space from the membrane. It is preferred to dispose the electrode in contact with the membrane, since it advantageously provides a voltage attributable to the low membrane resistance. See col. 7, lines 45-53. By reinforcing the composite membrane, the interior of the membrane has a low electric resistance and the membrane resistance in the vicinity of the anode tends to be close to the liquid resistance and a substantial effect as if the membrane is reduced is obtained.

See col. 8, lines 3-10. Example 1 shows the electrodes being applied to the membrane and then being laminated.

The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the instant invention was made because even though the prior art of DeNora et al does not disclose the specific contact area being greater than 50%, DeNora et al does disclose intimate contact of those surfaces. Suzuki et al sets forth supporting the membrane with reinforcement to lower the resistance of the membrane and then applying the electrodes by lamination processing to improve the voltage attributable to the low membrane resistance. Since Suzuki et al does show that reinforced membranes are known in the art for use in electrolytic cells and are used to reduce the resistance of the membrane and further since it is known to laminated the electrodes to such membrane to take advantage of the lower resistance and to improve the cell voltage, one having ordinary skill in the art would recognize that such a concept would be within the ability of the person having ordinary skill in the art to be used in the device of DeNora to improve such cell construction. Since applicant has not shown data comparing the prior art device with that of the instant invention it appears that intimate does in fact yield a contact region of greater than 50% as can be seen by the reduced resistance and improved voltage of the cell. Therefore, the prior art of DeNora et al in combination with Suzuki et al renders the applicants instant invention obvious for the reasons set forth above.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 12-13, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolouch et al (6042702) in combination with Suzuki et al (4872958).

Kolouch et al discloses an electrochemical cell which has a perfluorinated cationic membrane that is made of hydrated copolymers of PTFE and PSFF vinyl either containing a pendant of sulfonic acid groups (NAFION) that has an equivalent wt. of 1100 gms., and 1500 gms., wherein the Nafion is a two layer structure. See col. 5, line 61 - col. 6, line 11. The anode and cathode are made of porous, gas diffusion electrodes having a high specific surface area. The anode and cathode comprise an electrochemically active material disposed adjacent, to the surface of the cation transporting membrane. A thin film of electrochemically active material may be applied directly to the membrane or in the membrane. The electrochemically active material may comprise a catalytic or metallic material or metallic oxide as long as the material can support charge transfer. The electrochemically active material may be a catalyst material of a noble metal or a transition metal and oxides, alloys or mixtures thereof. The catalyst material may be on a support of carbon and particles of PTFE. The electrode are hot pressed into the membrane in order to have a good contact between the catalyst material and the membrane. See col. 6, line 61 - col. 7, line 34.

Kolouch et al does not disclose the percentage of contact area between the cathode and ion exchange membrane nor the membrane being reinforced.

Suzuki et al disclose an ion exchange membrane for electrolysis of a perfluorocarbon polymer having either carboxylic groups or sulfonic acid groups. See col. 3, lines 3-9. The ion exchange membrane is formed by three layers as a composite. The composite is laminated at a temperature from 60 degrees C to 280 degrees C and at a pressure of 0.1 to 100 kg/cm^2 by the flat plate pressing method or roll pressing method. See col. 5, lines 11 – 21. The membrane is reinforced by inserting a support web or a woven fabric of a cloth or net or a non-woven fabric of PTFE or a metallic mesh or perforated sheet between the second and third layers or between the third and fourth layers of the membrane composite. See col. 5, lines 44-52. The electric resistance of the membrane is reduced by the reinforcing. See col. 6, lines 2-5. A substantial reduction of the membrane resistance is shown and has a low electric resistance. The reinforcing material of fibers having oxidation resistance and heat resistance to maintain the dimension stability and mechanical strength is disclosed. See col. 6, lines 19-39. When an electrode is installed, the electrode may be disposed in contact with the membrane or with a space from the membrane. It is preferred to dispose the electrode in contact with the membrane, since it advantageously provides a voltage attributable to the low membrane resistance. See col. 7, lines 45-53. By reinforcing the composite membrane, the interior of the membrane has a low electric resistance and the membrane resistance in the vicinity of the anode tends to be close to the liquid resistance and a substantial effect as if the membrane is reduced is obtained. See col. 8, lines 3-10. Example 1 shows the electrodes being applied to the membrane and then being laminated.

The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the instant invention was made because even though the prior art of Kolouch et al does not specifically address the percentage of contact area between the cathode and ion exchange membrane it appears that the hot pressing method would yield a contact area of the magnitude set forth in applicants instant claims, absent evidence to the contrary. Further, since Suzuki et al sets forth supporting the membrane with reinforcement to lower the resistance of the membrane and then applying the electrodes by lamination processing to improve the voltage attributable to the low membrane resistance and since Suzuki et al does show that reinforced membranes are known in the art for use in electrolytic cells and are used to reduce the resistance of the membrane and also shows that it is known to laminated the electrodes to such membrane to take advantage of the lower resistance and to improve the cell voltage, one having ordinary skill in the art would recognize that such a concept would be within the ability of the person having ordinary skill in the art to be used in the device of Kolouch et al to improve such cell construction.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 12, 13, 31, 33, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamune et al (5766429) in combination with Suzuki et al (4972958).

Shimamune et al disclose an electrolytic cell that is partitioned by an ion exchange membrane into anode and cathode compartments wherein at least one of an anode and cathode are closely contacted to the ion exchange membrane to form a gas diffusion electrode. See abstract. A gas diffusion electrode is applied to an ion exchange membrane which gas diffusion layer of the gas diffusion electrode is made hydrophobic (water proofed). A hydrophilic layer is applied to the gas diffusion layer to make the gas diffusion electrode which layer is the reaction layer. The patent further sets forth that by attaining a closely contacting or adhering the ion exchange membrane to the gas diffusion electrode, that a reduction of the bath voltage is achieved and that the electric resistance is minimized. See col. 1, lines 22-63. An ion exchange materials of Nafion is shown in example 1.

Shimamune et al does not specifically disclose the contact area of at least 50% of the geometric area nor does the patent disclose the membrane is reinforced.

Suzuki et al disclose an ion exchange membrane for electrolysis of a perfluorocarbon polymer having either carboxylic groups or sulfonic acid groups. See col. 3, lines 3-9. The ion exchange membrane is formed by three layers as a composite. The composite is laminated at a temperature from 60 degrees C to 280 degrees C and at a pressure of 0.1 to 100 kg/cm^2 by the flat plate pressing method or roll pressing method. See col. 5, lines 11 – 21. The membrane is reinforced by inserting a support

web or a woven fabric of a cloth or net or a non-woven fabric of PTFE or a metallic mesh or perforated sheet between the second and third layers or between the third and fourth layers of the membrane composite. See col. 5, lines 44-52. The electric resistance of the membrane is reduced by the reinforcing. See col. 6, lines 2-5. A substantial reduction of the membrane resistance is shown and has a low electric resistance. The reinforcing material of fibers having oxidation resistance and heat resistance to maintain the dimension stability and mechanical strength is disclosed. See col. 6, lines 19-39. When an electrode is installed, the electrode may be disposed in contact with the membrane or with a space from the membrane. It is preferred to dispose the electrode in contact with the membrane, since it advantageously provides a voltage attributable to the low membrane resistance. See col. 7, lines 45-53. By reinforcing the composite membrane, the interior of the membrane has a low electric resistance and the membrane resistance in the vicinity of the anode tends to be close to the liquid resistance and a substantial effect as if the membrane is reduced is obtained. See col. 8, lines 3-10. Example 1 shows the electrodes being applied to the membrane and then being laminated.

The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the instant invention was made because even though Shimamune et al does not set forth the specific contact area of at least 50% of the geometric area, Shimamune et al does disclose a reduction in bath voltage and does disclose that the electric resistance is minimized which is what the applicants instant invention is doing. Further, since Suzuki et al sets forth supporting the membrane with reinforcement to

lower the resistance of the membrane and then applying the electrodes by lamination processing to improve the voltage attributable to the low membrane resistance and since Suzuki et al does show that reinforced membranes are known in the art for use in electrolytic cells and are used to reduce the resistance of the membrane and also shows that it is known to laminated the electrodes to such membrane to take advantage of the lower resistance and to improve the cell voltage, one having ordinary skill in the art would recognize that such a concept would be within the ability of the person having ordinary skill in the art to be used in the device of Shimamune et al to improve such cell construction. Therefore, one having ordinary skill in the art would recognize based on the teachings in Shimamune about the closely contacting or adhering ion exchange membrane to the gas diffusion electrode, in conjunction with low electric resistance (indicative of good physical contact) and low bath voltages (also indicative of low electric resistance), that in fact, the gas diffusion electrode and the ion exchange membrane must be in contact with each other at an amount of greater than 70% since low electric resistance would not be found at lower percentages and since Suzuki et al shows that a low electric resistance is achieved through the use of a reinforced membrane and lamination of both the membrane and the electrodes in the formation of the structure, it appears that the prior art of Shimamune et al in combination with Suzuki et al renders the applicants instant invention obvious for the reasons set forth above.

The process limitations of pressure and temperature are considered in light of the specification and the claimed invention however, has not been given patentable weight, since the product claimed appears to have been met by the prior art of Shimamune et al

in combination with Suzuki et al, since applicants have failed to show comparative results between the instant invention and the prior art that such pressures and temperatures materially affect the overall product having the same overall structure, since low electrical resistance is an indicator of intimate contact.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 18, 19, 21, 22, 24, 25, 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamune et al (5766429) in combination with Ford (4242184) and Suzuki et al (4872958).

Shimamune et al (5766429) is as disclosed above in the 35 USC 103 rejection.

Shimamune et al does not disclose a dual layer ion exchange membrane or that the ion exchange membrane is reinforced.

Ford discloses a membrane for an electrolytic cell having a duel layer ion exchange membrane having different equivalent weights of between 900 and 1600. The dual layers are laminated together to form one membrane. See col. 4, lines 41-46; col. 6, lines 6-22.

Suzuki et al disclose an ion exchange membrane for electrolysis of a perfluorocarbon polymer having either carboxylic groups or sulfonic acid groups. See col. 3, lines 3-9. The ion exchange membrane is formed by three layers as a composite.

The composite is laminated at a temperature from 60 degrees C to 280 degrees C and at a pressure of 0.1 to 100 kg/cm^2 by the flat plate pressing method or roll pressing method. See col. 5, lines 11 – 21. The membrane is reinforced by inserting a support web or a woven fabric of a cloth or net or a non-woven fabric of PTFE or a metallic mesh or perforated sheet between the second and third layers or between the third and fourth layers of the membrane composite. See col. 5, lines 44-52. The electric resistance of the membrane is reduced by the reinforcing. See col. 6, lines 2-5. A substantial reduction of the membrane resistance is shown and has a low electric resistance. The reinforcing material of fibers having oxidation resistance and heat resistance to maintain the dimension stability and mechanical strength is disclosed. See col. 6, lines 19-39. When an electrode is installed, the electrode may be disposed in contact with the membrane or with a space from the membrane. It is preferred to dispose the electrode in contact with the membrane, since it advantageously provides a voltage attributable to the low membrane resistance. See col. 7, lines 45-53. By reinforcing the composite membrane, the interior of the membrane has a low electric resistance and the membrane resistance in the vicinity of the anode tends to be close to the liquid resistance and a substantial effect as if the membrane is reduced is obtained. See col. 8, lines 3-10. Example 1 shows the electrodes being applied to the membrane and then being laminated.

The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the instant invention was made because even though Shimamune does not teach the dual membrane structure or equivalent weights, the prior art of Ford

and Suzuki et al both show the use of such membranes in a similar electrolytic cell, where the membrane of this construction is used to maximize the current efficiency of the electrolytic production through the use of the lower equivalent weight side of the polymer being placed near the side of the anode and the high equivalent weight on the side of the cathode. Further, the prior art of Suzuki et al shows that it is known to reinforce such membrane to achieve low resistance of the membrane and to laminate the membrane alone and then laminate the electrodes on either side of such membrane to achieve low resistance of the structure and to improve the cell voltages. Therefore, it would be within the ability of the person having ordinary skill in the art to use such a membrane in the Shimamune et al device to optimize the operation of the cell.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 12, 13, 18, 19, 21, 22, 24, 25, 27, 29, 31, 33, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (4526663) in combination with Suzuki et al (4872958).

Yoshida et al disclose an electrolysis cell having anode compartments and cathode compartments separated by a cation exchange membrane, wherein the cathodes are maintained in intimate contact with one entire surface of the cation exchange membrane. See abstract. Yoshida et al further discloses the use of a dual

layer ion exchange membrane where one layer has an equivalent weight of 1500 and the other side has an equivalent weigh of 1100. See example 8. The two ion exchange membrane layers are thermally fused into a two layer laminate. See example 5.

Yoshida et al does not specifically state that the contact area between the gas diffusion electrode and the ion exchange membrane is greater than 50%, or that the ion exchange membrane is reinforced.

Suzuki et al disclose an ion exchange membrane for electrolysis of a perfluorocarbon polymer having either carboxylic groups or sulfonic acid groups. See col. 3, lines 3-9. The ion exchange membrane is formed by three layers as a composite. The composite is laminated at a temperature from 60 degrees C to 280 degrees C and at a pressure of 0.1 to 100 kg/cm^2 by the flat plate pressing method or roll pressing method. See col. 5, lines 11 – 21. The membrane is reinforced by inserting a support web or a woven fabric of a cloth or net or a non-woven fabric of PTFE or a metallic mesh or perforated sheet between the second and third layers or between the third and fourth layers of the membrane composite. See col. 5, lines 44-52. The electric resistance of the membrane is reduced by the reinforcing. See col. 6, lines 2-5. A substantial reduction of the membrane resistance is shown and has a low electric resistance. The reinforcing material of fibers having oxidation resistance and heat resistance to maintain the dimension stability and mechanical strength is disclosed. See col. 6, lines 19-39. When an electrode is installed, the electrode may be disposed in contact with the membrane or with a space from the membrane. It is preferred to dispose the electrode in contact with the membrane, since it advantageously provides a

voltage attributable to the low membrane resistance. See col. 7, lines 45-53. By reinforcing the composite membrane, the interior of the membrane has a low electric resistance and the membrane resistance in the vicinity of the anode tends to be close to the liquid resistance and a substantial effect as if the membrane is reduced is obtained. See col. 8, lines 3-10. Example 1 shows the electrodes being applied to the membrane and then being laminated.

The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the instant invention was made because even though the prior art of Yoshida et al does not disclose the degree of contact as set forth in the instant claim, the patent does set forth that the cathode and ion exchange membrane are fused and in intimate contact with one another and that the process is done by lamination processing which is known to use pressure. Therefore, absent evidence to the contrary, it appears that a cathode/membrane made as set forth in the Yoshida et al patent, would in fact yield a contact area, between the cathode and ion exchange membrane, greater than 70%. Yoshida et al further discloses the use of a support embedded between the two layers. See example 5. Suzuki et al further shows that a membrane of this type can be reinforced to improve the electrical resistance of the membrane and that the electrodes can be applied thereto using a lamination process to further improve the electrical resistance and cell voltage. Therefore, the prior art of Yoshida et al in combination with Suzuki et al renders the applicants instant invention obvious for the reasons set forth above.

Response to Arguments

11. Applicant's arguments filed July 13, 2009 have been fully considered but they are not persuasive.

Applicant argues with respect to all the rejections that the ion exchange membrane is supported and that the temperature and pressure at which the gas diffusion electrode and membrane are laminated to be in intimate contact to achieve a contact area of greater than 50% is not taught. However, in a product claim, the pressure and temperature at which an assembly is produced is not considered in a product by process, unless it can be shown that the process materially changes the final product. Since applicants have failed to provide data showing the prior art inventions versus the instant invention and in view of the prior art showing that the electrical resistance is low which is an indicator of intimate contact between the surfaces of both the electrodes and the membrane, it appears that the prior art of record teaches the instant invention, absent evidence to the contrary. Since the patent office does not have the capability of providing such data, the burden of proof is on the applicants to show that their final product instant invention is different than the prior art inventions through the use of comparative data. Applicant further argues that close contact and intimate contact are different, however, the addition of the prior art of Suzuki showing that the electrical resistance of the membrane and the improved voltage characteristics of the cell are indicators of “intimate contact”. Therefore, this point is moot. Applicant appears also to be arguing that improved operating voltages are not taught, however, Suzuki et al is clear that these operating voltages are improved and therefore applicants

arguments of unexpected results is moot. Applicant further appears to be arguing data of intimate contact within their instant specification, however, this is not a comparison between the prior art devices teaching low electrical resistance and improved voltage characteristics and the instant invention. Therefore this argument is moot. Therefore, the rejections as set forth above STAND for the reasons set forth for each rejection as applied to the instant claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BFB

/Bruce F. Bell/

August 17, 2009

Primary Examiner, Art Unit 1795